

## SECTION 2. MAINTENANCE

### 2-1. INTRODUCTION

This section provides procedures for the checkout and replacement of the various parts used within the fryer. Before replacing any parts, refer to the Troubleshooting Section. It will aid you in determining the cause of the malfunction.

### 2-2. MAINTENANCE HINTS

1. You may need to use a multimeter to check the electric components.
2. When the manual refers to the circuit being closed, the multimeter should read zero unless otherwise noted.
3. When the manual refers to the circuit being open, the multimeter will read infinity.

### 2-3. COMPLETE CONTROL PANEL REPLACEMENT



Should the control board become inoperative, follow these instructions for replacing the board.

1. Remove electrical power supplied to the unit.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**



2. Remove the four screws securing the control panel and lift out.
3. Unplug the wire connectors going to the control board.
4. Install new control panel in reverse order.

**CAUTION**

*When plugging connectors onto new control panel, be sure the connectors are inserted onto all of the pins, and that the connectors are not forced onto the pins backwards. If not connected properly, damage to the board could result.*

## **2-4. POWER SWITCH**



1. Remove electrical power supplied to fryer.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**

2. Remove control panel.
3. Label and remove the wires from the switch. With test instrument, check across the terminals of the switch with the switch in the ON position, then in the OFF position. With the switch in the ON position, the circuit should be closed. With the switch in the OFF position, the circuit should be open. If the switch checks defective, replace by continuing with this procedure.
4. With control panel removed, and the wires off the switch, push in on tabs on the switch to remove from panel.
5. Replace with new switch, and reconnect wires to switch.
6. Replace the control panel.

## **2-5. TRANSFORMER**

The transformer reduces voltage down to accommodate those components with low voltage.

1. Remove electrical power supplied to the unit.

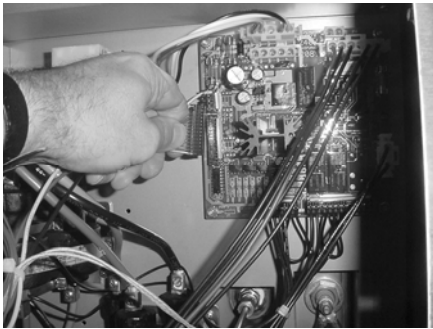


**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**



2. Remove the control panel as discussed in Complete Control Panel Replacement Section.
3. Squeeze on the wire connector at the I/O board assembly to disconnect the wires from the transformer.
4. Using a Phillips head screwdriver, remove the two screws securing the transformer to the shroud.
5. Install the new transformer in reverse order.

## **2-6. I/O POWER SUPPLY BOARD ASSEMBLY**

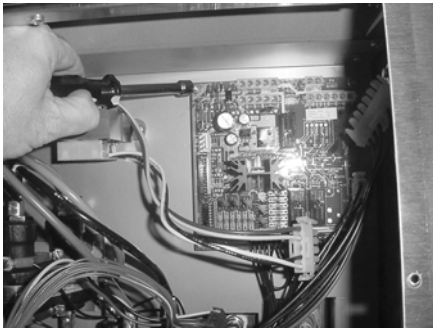


The input/output power supply board assembly distributes voltage to the various components in the fryer. The board also receives information from components in the fryer.

1. Remove electrical power supplied to the unit.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**



2. Remove the control panel as discussed in Complete Control Panel Replacement Section.
3. Disconnect the wire assemblies from the board.
4. Using a nut driver or wrench, remove the four keps nuts securing the board to the shroud.
5. Install the new I/O board assembly in reverse order.

## **2-7. DRAIN MICROSWITCH**

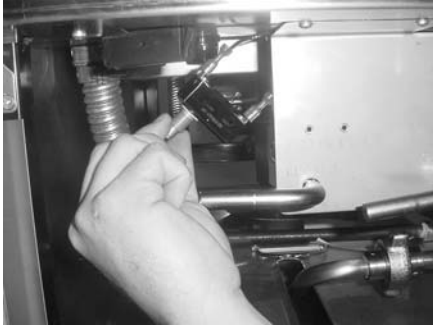
Upon turning the drain handle, the drain microswitch circuit should open, cutting off the pilot flame. This will prevent the fryer from heating while shortening is being drained from the frypot.

1. Remove electrical power supplied to the unit.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**

## **2-7. DRAIN MICROSWITCH** **(Continued)**



2. The following check should be made to determine if the drain microswitch is defective.
  - a. Remove the two screws securing the microswitch to the drain rod valve bracket.
  - b. Remove wires from the switch.
  - c. Check for continuity across the two outside terminals of the drain switch. If the circuit is open, the drain switch is defective. The circuit should only be opened by pressing on the actuator of the drain switch.
3. Replace switch in reverse order.

## **2-8. FILTER SWITCH**

1. Remove electrical power supplied to the unit.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**

2. Remove the control panel above the switch.
3. Label and remove the wires from the switch. With test instrument, check across the terminals of the switch with the switch in the ON position, and then in the OFF position. With the switch in the ON position, the circuit should be closed. With the switch in the OFF position, the circuit should be open. If the switch checks defective, replace it by continuing with this procedure.
4. With wires removed from the switch, push in on tabs on the switch and remove switch from the panel.
5. Push new switch into panel and reconnect wires.



## **2-9. HEATING ELEMENTS**

### **NOTICE**

Heating elements are available for 208, 480 and 230 volts. Check data plate to determine correct voltage.

#### **Checkout:**

If the shortenings temperature recovery is very slow or at a slower rate than required, this may indicate defective heating element(s). An ohmmeter will quickly indicate if the elements are shorted or open.

1. Remove electrical power supplied to the frypot to be worked on.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle, to the frypot to be worked on. Be aware the other controls will have power.**

2. Remove control panel.
3. Perform an ohm check on one element at a time, with wires disconnected from element. If the resistance is not within tolerance, replace the element.

<b>Voltage</b>	<b>Wattage</b>	<b>Resistance Ohms (cold)</b>
208	7333	5.6
240	7333	6.9
480	7333	27.5

#### **Replacement:**

### **NOTICE**

Refer to figure 2-2.

1. Drain the shortening from the frypot.
2. Remove the high limit bulb holder from the heating element inside the frypot.

## **2-9. HEATING ELEMENTS**

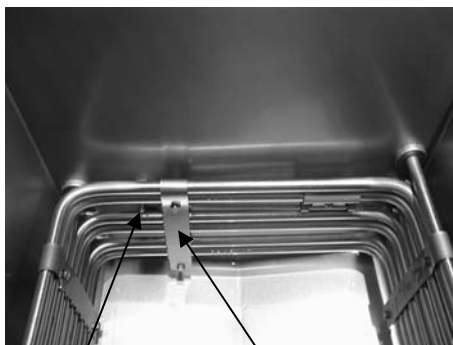
### **(Continued)**

3. Remove the heating element wires from the terminals by removing the nuts and washers. Label each so it can be replaced on the new element in the same position.
4. Remove the bolts from the five element spreaders. The element spreaders will now pull off the elements.
5. Remove the brass nuts and washers which secure the ends of the elements through the frypot wall.
6. Remove the heating elements from the frypot as a group by lifting the far end and sliding them up and out toward the rear of the frypot.

### **NOTICE**

Always install new rubber O-rings when installing heater elements.

7. Install new heating elements with the new O-rings, terminal end first at approximately a 45° angle, slipping the terminals through the front wall of the frypot.
8. Replace the brass nuts and washers on the element terminals. Tighten the brass nuts to 30 foot lbs. of torque.
9. Evenly space the element spreaders on the sides of the elements and reinstall bolts. Place the fifth spreader in the front of the elements as to protect the temperature probe. (Fig.2-1)



**Temperature  
Probe**

**Spreader**

**Fig. 2-1**

10. Replace the high limit bulb holder on the top element, and position the bulb between the top and second element midway from side to side, and tighten screw that holds the bulb in place.
11. Reconnect the wires to the appropriate terminal as labeled when they were removed.
12. Replace the front control panel.



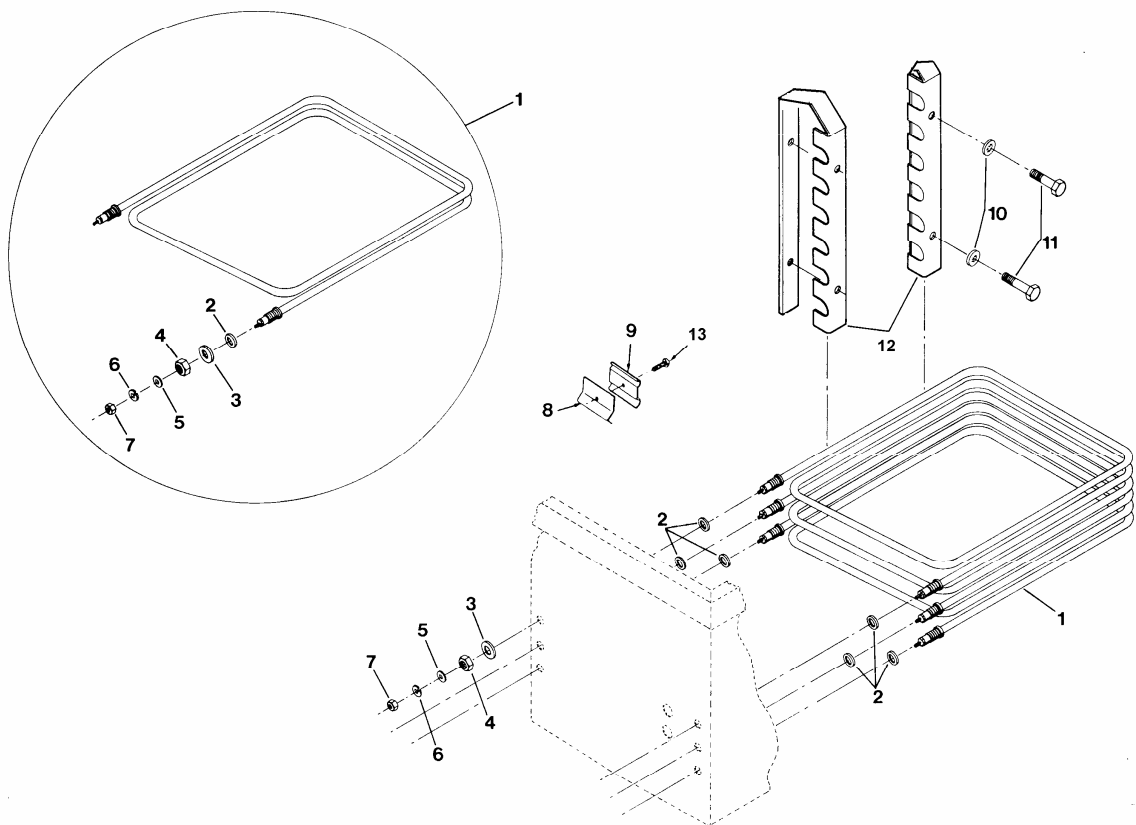
## **2-9. HEATING ELEMENTS** **(Continued)**

13. Connect the power cord to the wall receptacle or close wall circuit breaker.

**CAUTION**

*Heating elements should never be energized without shortening in the frypot, or damage to the elements could result.*

14. Replace the shortening in the frypot.



**Fig. 2-2**

## **2-10. HEATING** **CONTACTORS**

Each well of an electric fryer requires two switching contactors. The first in line is the primary contactor and the second in line is the heat contactor. When open, the primary contactor does not allow power to flow to the heat contactor. When closed, the primary supplies voltage to the heat contactor. When the heat contactor is open, no voltage is supplied to the heating elements. When the heat contactor closes, voltage is supplied to the heating elements.

### **Checkout (Power Removed)**

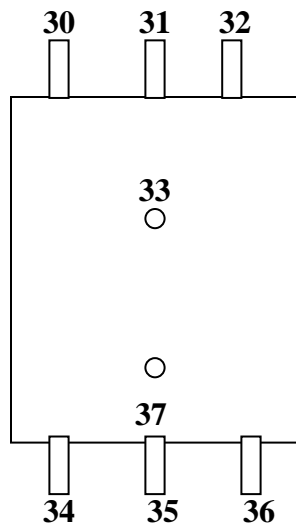
1. Remove electrical power supplied to the frypot to be worked on.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle, to the frypot to be worked on. Be aware the other controls will have power.**

2. Remove the control panel.

3. Perform a check on the contactor as follows:



**Mercury Contactor**

#### Test Points

From 30 to 34  
From 31 to 35  
From 32 to 36  
From 33 to 37

#### Results

open circuit  
open circuit  
open circuit  
ohm reading 1700



Wires should be removed and labeled to obtain an accurate check of contactors.



## **2-10. HEATING** **CONTACTORS** **(Continued)**

### **Checkout (Power Supplied)**



To avoid electrical shock, make connections before applying power, take reading, and remove power before removing meter leads. The following checks are performed with the wall circuit breaker closed and the main power switch in the ON position.

1. Re-apply power to unit and turn POWER switch ON.
2. Using illustrations from previous page, check voltage as follows:

#### **Test Points**

From terminal 34 to 35

From terminal 35 to 36

From terminal 34 to 36

#### **Results**

The voltage should read the same at each terminal

### **Replacement:**

If either contactor is defective it must be replaced as follows:



To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle, to the frypot to be worked on. Be aware the other controls will have power.



1. Remove only the wires directly connected to the contactor being replaced. Label the wires for replacement.
2. Loosen the screws securing the contactor bracket to the shroud.
3. Remove the contactor from the bracket.
4. Reinstall in reverse order.

## **2-11. SPEAKER ASSEMBLY**

The speaker assembly emits audible signals to let the operator know when cooking and hold times are finished.

1. Remove electrical power supplied to unit.



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.**



2. Remove control panel.
3. Follow the speaker wire and disconnect from control board.
4. Remove the screws securing the speaker bracket to the shroud.
5. Remove the speaker from the bracket.
6. Reinstall in reverse order.

## **2-12. HIGH TEMPERATURE LIMIT CONTROL**

The electric units, model OFE-321/2/3/4, use the same high temperature control limits as the gas units, OFG-321/2/3/4, but the mounting of the capillary tube is different on the electric units compared to the gas units.

### **Checkout:**

Use the same procedure as in the High Limit Temperature Control (Gas) Section.

### **Replacement:**



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle, to the frypot to be worked on. Be aware the other controls will have power.**

## **2-12. HIGH TEMPERATURE LIMIT CONTROL**

The electric units, models OFE-321/2/3/4, use the same high temperature control limits as the gas units, but the mounting of the capillary tube is different on the electric units compared to the gas units.

### **Checkout:**

Use the same procedure as in the High Limit Temperature Control (Gas) Section.

## **NOTICE**

Use replacement high limit, part no. 60241, 425 degree.

### **Replacement:**



**To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle, to the frypot to be worked on. Be aware the other controls will have power.**



1. Drain the shortening from the frypot.
2. Remove control panel.
3. Loosen small inside screw nut on capillary tube.
4. Remove capillary bulb from bulb holder inside the frypot.
5. Straighten the capillary tube.
6. Remove larger outside nut that threads into pot wall.
7. Remove the two screws that secure the high limit to the high limit bracket.
8. Remove the defective control from the control panel area.

**2-12. HIGH TEMPERATURE**  
**LIMIT CONTROL**  
**(Continued)**

**CAUTION**

*Be sure capillary bulb of high limit is located behind capillary bulb of thermostat. Both capillary bulbs and bulb holders should be positioned as not to interfere with basket or when cleaning the frypot wall, or damage to capillary tube could result.*

13. With excess capillary line pulled out, tighten smaller nut hand tight, then ¼ turn with wrench.
14. Replace front panel.
15. Refill with shortening.

